Response to Amendment

This action is in response to Applicant's amendment filed on December 24, 2009.

Claims 91, 94, 96-102, 105, 107-113, 116 and 118-135 are now pending.

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or

additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR

1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the

payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with

Douglas Crisman on February 18, 2010.

AMENDMENT TO CLAIMS

1-90.   (Cancelled)

91.   (Currently Amended) A computer-implemented method for visualizing a hierarchical,
multi-dimensional dataset having a plurality of dimensions and measures, comprising:

at a computer having one or more processors and memory storing programs executed by
the one or more processors:

displaying a graphical user interface window for visualizing [[a]] the dataset having an
inherent hierarchical dimension, wherein one of the dimensions is a the hierarchical dimension
that includes a first dimension level and a second dimension level, the graphical user interface
window including a schema display region and a data visualization region, wherein:

- the schema display region includes metadata ~~describing a hierarchical structure of the dataset including~~ identifying the plurality of measures and dimensions including the first dimension level and the second dimension level, and wherein the schema display region is generated by:

  identifying one or more measures from the dataset;

  generating ~~an ordered~~ a list of the first and second dimension levels and ~~an ordered~~ a list of the identified measures; and

  displaying the ~~ordered~~ lists of the first and second dimension levels and the identified measures in the schema display region;

- the data visualization region includes a first axis shelf, a second axis shelf, and a visual table;

detecting user requests to associate the metadata identifying the first dimension level with the first axis shelf, associate the metadata identifying the second dimension level with the second axis shelf, and associate the metadata of a measure selected from the schema display region with the first or second axis shelf; ~~and second dimension levels in the schema display region with either the first axis shelf or the second axis shelf, respectively; and~~

in response to the user requests,

forming in the visual table a plurality of panes, each pane having a first axis corresponding to the first dimension level associated with the first axis shelf and a second axis corresponding to the second dimension level associated with the second axis shelf; ~~and~~

dividing the dataset into a plurality of subsets, each subset corresponding to a respective one of the plurality of panes; and

populating each pane in the visual table with ~~at least~~ a respective ~~sub-~~subset of the dataset in accordance with the arrangement of the first and second axes, wherein the first and second axes have different directions, further including:

displaying one or more data values associated with the first dimension level in the respective subset along the first axis of the pane;

displaying one or more data values associated with the second dimension level in the respective subset along the second axis of the pane; and

       displaying one or more marks in the pane, each mark corresponding to a respective data value associated with the measure in the respective subset.

92.   (Cancelled)

93.   (Cancelled)

94.   (Previously Presented) The method of claim 91, further comprising:

       displaying an icon for the first dimension level in the schema display region;

       detecting a user selection of the icon in the schema display region;

       detecting a user selection of the first axis shelf in the data visualization region; and

       moving a copy of the icon from the schema display region into the first axis shelf in the data visualization region.

95.   (Cancelled)

96.   (Currently Amended) The method of claim 91, ~~wherein populating each pane in the visual table further includes:~~

       ~~dividing the subset of the dataset into a plurality of sub-subsets, each sub-subset having a set of data records and corresponding to a respective pane, wherein the set of data records includes a first set of data values associated with the first dimension level and a second set of data values associated with the second dimension level; and~~

       ~~generating a mark in a respective pane for each data record associated with the pane,~~ wherein ~~the~~ <u>each</u> mark is positioned along the first axis of the pane in accordance with the corresponding data value associated with the first dimension level and the mark is positioned along the second axis of the pane in accordance with the corresponding data value associated with the second dimension level.

97.   (Previously Presented) The method of claim 91, wherein populating each pane in the visual table further includes:

       constructing a visual specification, wherein the visual specification defines a mapping from the dataset to each pane in the visual table; and

retrieving data records from the dataset in accordance with the visual specification.

98.   (Previously Presented) The method of claim 91, wherein the first axis is in the horizontal direction and the second axis is in the vertical direction.

99.   (Previously Presented) The method of claim 91, wherein the hierarchical dimension is time and the first level is higher than the second level in the natural hierarchy of time.

100.   (Previously Presented) The method of claim 91, wherein the hierarchical dimension is location and the first level is higher than the second level in the natural hierarchy of location.

101.   (Previously Presented) The method of claim 91, wherein the hierarchical dimension is product and the first level is higher than the second level in the natural hierarchy of product.

102.   (Currently Amended) A computer readable storage medium and a computer program mechanism embedded therein for forming a visual table from a hierarchical, multi-dimensional dataset having a plurality of dimensions and measures an inherent hierarchical dimension, wherein one of the dimensions is a the hierarchical dimension that includes a first dimension level and a second dimension level, the computer program mechanism comprising instructions that are executed by a computer system to:

display a graphical user interface window for visualizing the dataset, the graphical user interface window including a schema display region and a data visualization region, wherein:

- the schema display region includes metadata describing a hierarchical structure of the dataset including identifying the plurality of measures and dimensions including the first dimension level and the second dimension level, and wherein the schema display region is generated by:

identifying one or more measures from the dataset;

generating an ordered a list of the first and second dimension levels and an ordered a list of the identified measures; and

displaying the ordered lists of the first and second dimension levels and the identified measures in the schema display region;

- the data visualization region includes a first axis shelf, a second axis shelf, and a visual table;

detect user requests to associate the metadata identifying the first <u>dimension level with the first axis shelf, associate the metadata identifying the second dimension level with the second axis shelf, and associate the metadata of a measure selected from the schema display region with the first or second axis shelf,</u> ~~and second dimension levels in the schema display region with either the first axis shelf or the second axis shelf, respectively; and~~

<u>in response to the user requests,</u>

form in the visual table a plurality of panes, each pane having a first axis corresponding to the <u>first</u> dimension level associated with the first axis shelf and a second axis corresponding to the <u>second</u> dimension level associated with the second axis shelf in response to the user requests; ~~and~~

<u>divide the dataset into a plurality of subsets, each subset corresponding to a respective one of the plurality of panes; and</u>

populate each pane in the visual table with ~~at least~~ a respective ~~sub-~~subset of the dataset in accordance with the arrangement of the first and second axes<u>, wherein the first and second axes have different directions, further including:</u>

<u>displaying one or more data values associated with the first dimension level in the respective subset along the first axis of the pane;</u>

<u>displaying one or more data values associated with the second dimension level in the respective subset along the second axis of the pane; and</u>

<u>displaying one or more marks in the pane, each mark corresponding to a respective data value associated with the measure in the respective subset.</u>

103.   (Cancelled)

104.   (Cancelled)

105.   (Previously Presented) The computer readable storage medium and computer program mechanism of claim 102, further comprising:

instructions for displaying an icon for the first dimension level in the schema display region;

instructions for detecting a user selection of the icon in the schema display region;

instructions for detecting a user selection of the first axis shelf in the data visualization region; and

instructions for moving a copy of the icon of the first dimension level from the schema display region into the first axis shelf in the data visualization region.

106.   (Cancelled)

107.   (Currently Amended) The computer readable storage medium and computer program mechanism of claim 102, ~~wherein the instructions for populating each pane in the visual table further include:~~

~~instructions for dividing the subset of the dataset into a plurality of sub-subsets, each sub-subset having a set of data records and corresponding to a respective pane, wherein the set of data records includes a first set of data values associated with the first dimension level and a second set of data values associated with the second dimension level; and~~

~~instructions for generating a mark in a respective pane for each data record associated with the pane,~~ wherein ~~the~~ each mark is positioned along the first axis of the pane in accordance with the corresponding data value associated with the first dimension level and the mark is positioned along the second axis of the pane in accordance with the corresponding data value associated with the second dimension level.

108.   (Previously Presented) The computer readable storage medium and computer program mechanism of claim 102, wherein the instructions for populating each pane in the visual table further include:

instructions for constructing a visual specification, wherein the visual specification defines a mapping from the dataset to each pane in the visual table; and

instructions for retrieving data records from the dataset in accordance with the visual specification.

109.   (Previously Presented) The computer readable storage medium and computer program
mechanism of claim 102, wherein the first axis is in the horizontal direction and the second axis
is in the vertical direction.

110.   (Previously Presented) The computer readable storage medium and computer program
mechanism of claim 102, wherein the hierarchical dimension is time and the first level is higher
than the second level in the natural hierarchy of time.

111.   (Previously Presented) The computer readable storage medium and computer program
mechanism of claim 102, wherein the hierarchical dimension is location and the first level is
higher than the second level in the natural hierarchy of location.

112.   (Previously Presented) The computer readable storage medium and computer program
mechanism of claim 102, wherein the hierarchical dimension is product and the first level is
higher than the second level in the natural hierarchy of product.

113.   (Currently Amended) A computer system, comprising:
        one or more processors;
        memory; and
        one or more programs, wherein the one or more programs are stored in the memory and
configured to be executed by the one or more processors, the programs including:
        instructions for displaying a graphical user interface window for visualizing a
hierarchical, multi-dimensional dataset having a plurality of dimensions and measures ~~an
inherent hierarchical dimension~~, wherein one of the dimensions is a ~~the~~ hierarchical dimension
that includes a first dimension level and a second dimension level, the graphical user interface
window including a schema display region and a data visualization region, wherein:
        • the schema display region includes metadata ~~describing a hierarchical structure of
          the dataset including~~ identifying the plurality of measures and dimensions
          including the first dimension level and the second dimension level, and
          wherein the schema display region is generated by:
                identifying one or more measures from the dataset;

generating ~~an ordered~~ a list of the first and second dimension levels and ~~an ordered~~ a list of the identified measures; and

displaying the ~~ordered~~ lists of the first and second dimension levels and the identified measures in the schema display region;

- the data visualization region includes a first axis shelf, a second axis shelf, and a visual table;

instructions for user requests to associate the metadata identifying the first <u>dimension level with the first axis shelf, associate the metadata identifying the second dimension level with the second axis shelf, and associate the metadata of a measure selected from the schema display region with the first or second axis shelf;</u> ~~and second dimension levels in the schema display region with either the first axis shelf or the second axis shelf, respectively; and~~

instructions for<u>, in response to the user requests,</u>

forming in the visual table a plurality of panes, each pane having a first axis corresponding to the <u>first</u> dimension level associated with the first axis shelf and a second axis corresponding to the <u>second</u> dimension level associated with the second axis shelf in response to the user requests;

<u>dividing the dataset into a plurality of subsets, each subset corresponding to a respective one of the plurality of panes; and</u>

instructions for populating each pane in the visual table with ~~at least~~ a respective ~~sub-~~subset of the dataset in accordance with the arrangement of the first and second axes<u>, wherein the first and second axes have different directions, further including:</u>

<u>instructions for displaying one or more data values associated with the first dimension level in the respective subset along the first axis of the pane;</u>

<u>instructions for displaying one or more data values associated with the second dimension level in the respective subset along the second axis of the pane; and</u>

<u>instructions for displaying one or more marks in the pane, each mark corresponding to a respective data value associated with the measure in the respective subset.</u>

114.   (Cancelled)

115.   (Cancelled)

116.   (Previously Presented) The computer system of claim 113, further comprising:

        instructions for displaying an icon for the first dimension level in the schema display
region;

        instructions for detecting a user selection of the icon in the schema display region;

        instructions for detecting a user selection of the first axis shelf in the data visualization
region; and

        instructions for moving a copy of the icon of the first dimension level from the schema
display region into the first axis shelf in the data visualization region.

117.   (Cancelled)

118.   (Currently Amended) The computer system of claim 113, ~~wherein the instructions for
populating each pane in the visual table further include:~~

        ~~instructions for dividing the subset of the dataset into a plurality of sub-subsets, each sub-
subset having a set of data records and corresponding to a respective pane, wherein the set of
data records includes a first set of data values associated with the first dimension level and a
second set of data values associated with the second dimension level; and~~

        ~~instructions for generating a mark in a respective pane for each data record associated
with the pane,~~ wherein the each mark is positioned along the first axis of the pane in accordance
with the corresponding data value associated with the first dimension level and the mark is
positioned along the second axis of the pane in accordance with the corresponding data value
associated with the second dimension level.

119.   (Previously Presented) The computer system of claim 113, wherein the instructions for
populating each pane in the visual table further include:

        instructions for constructing a visual specification, wherein the visual specification
defines a mapping from the dataset to each pane in the visual table; and

        instructions for retrieving data records from the dataset in accordance with the visual
specification.

120.   (Previously Presented) The computer system of claim 113, wherein the first axis is in the horizontal direction and the second axis is in the vertical direction.

121.   (Previously Presented) The computer system of claim 113, wherein the hierarchical dimension is time and the first level is higher than the second level in the natural hierarchy of time.

122.   (Previously Presented) The computer system of claim 113, wherein the hierarchical dimension is location and the first level is higher than the second level in the natural hierarchy of location.

123.   (Previously Presented) The computer system of claim 113, wherein the hierarchical dimension is product and the first level is higher than the second level in the natural hierarchy of product.

124.   (Canceled)

125.   (Canceled)

126.   (Currently Amended) The method of claim 91, wherein the dataset is ~~a hierarchical, multidimensional,~~ an OLAP data cube.

127.   (Previously Presented) The method of claim 91, wherein the hierarchical dimension includes a third dimension level, the first, second, and third dimension levels having a natural order, and wherein the first axis of each pane corresponds the first and third dimension levels and the second axis of each pane corresponds to the second dimension level.

128.   (Currently Amended) The computer readable storage medium and computer program mechanism of claim 102, wherein the dataset is ~~a hierarchical, multidimensional,~~ an OLAP data cube.

129.   (Previously Presented) The computer readable storage medium and computer program mechanism of claim 102, wherein the hierarchical dimension includes a third dimension level,

the first, second, and third dimension levels having a natural order, and wherein the first axis of each pane corresponds the first and third dimension levels and the second axis of each pane corresponds to the second dimension level.

130.   (Currently Amended) The computer system of claim 113, wherein the dataset is ~~a hierarchical, multidimensional,~~ an OLAP data cube.

131.   (Previously Presented) The computer system of claim 113, wherein the hierarchical dimension includes a third dimension level, the first, second, and third dimension levels having a natural order, and wherein the first axis of each pane corresponds the first and third dimension levels and the second axis of each pane corresponds to the second dimension level.

132 – 135 (Canceled)

Allowable Subject Matter

Claims 91, 94, 96-102, 105, 107-113, 116, 118-123, and 126-131 are allowable over the prior art of record, renumbered as claims 1-30, respectively.

The following is an examiner's statement of reasons for allowance:

Claims 91, 102 and 113 are allowable because the best prior art of record or that encountered in searching for the invention, fails to disclose or suggest a graphical user interface window for visualizing a dataset, the graphical user interface window including a schema display region and a data visualization region, the schema display region includes metadata identifying measures and dimensions including first dimension level and second dimension level, the data visualization region includes a first axis shelf, a second axis shelf, and a visual table, detecting user requests to associate the metadata identifying the first dimension level with the first axis shelf, associate the metadata identifying the second dimension level with the second axis shelf,

and associate the metadata of a measure selected from the schema display region with the first

or second axis shelf, in response to the user requests, form in the visual table a plurality of panes,

each pane having a first axis corresponding to the first dimension level associated with the first

axis shelf and a second axis corresponding to the second dimension level associated with the

second axis shelf, divide the dataset into a plurality of subsets, each subset corresponding to a

respective one of the plurality of panes and populate each pane in the visual table with a

respective subset of the dataset in accordance with the arrangement of the first and second axes,

wherein the first and second axes have different directions, and wherein the populating includes

displaying one or more marks in the pane, each mark corresponding to a respective data value

associated with the measure in the respective subset, as claimed in addition to the other claim

provisions.

With regard to claims 94, 96-101, 105, 107-112, 116, 118-123, and 126-131, they depend

from allowable claims 91, 102 and 113 respectively, and are therefore allowable on the same

basis.

The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure. The following prior arts show the state of art with respect to pattern matching.

U.S. Patent No. 6,707,454

U.S. Patent No. 7,181,450

Any comments considered necessary by applicant must be submitted no later than the

payment of the issue fee and, to avoid processing delays, should preferably accompany the issue

fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for

Allowance."

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to MARC R. FILIPCZYK whose telephone number is (571)272-

4019. The examiner can normally be reached on Mon-Fri, 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Mohammad Ali can be reached on 571-272-4105. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

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like assistance from a USPTO Customer Service Representative or access to the automated

information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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